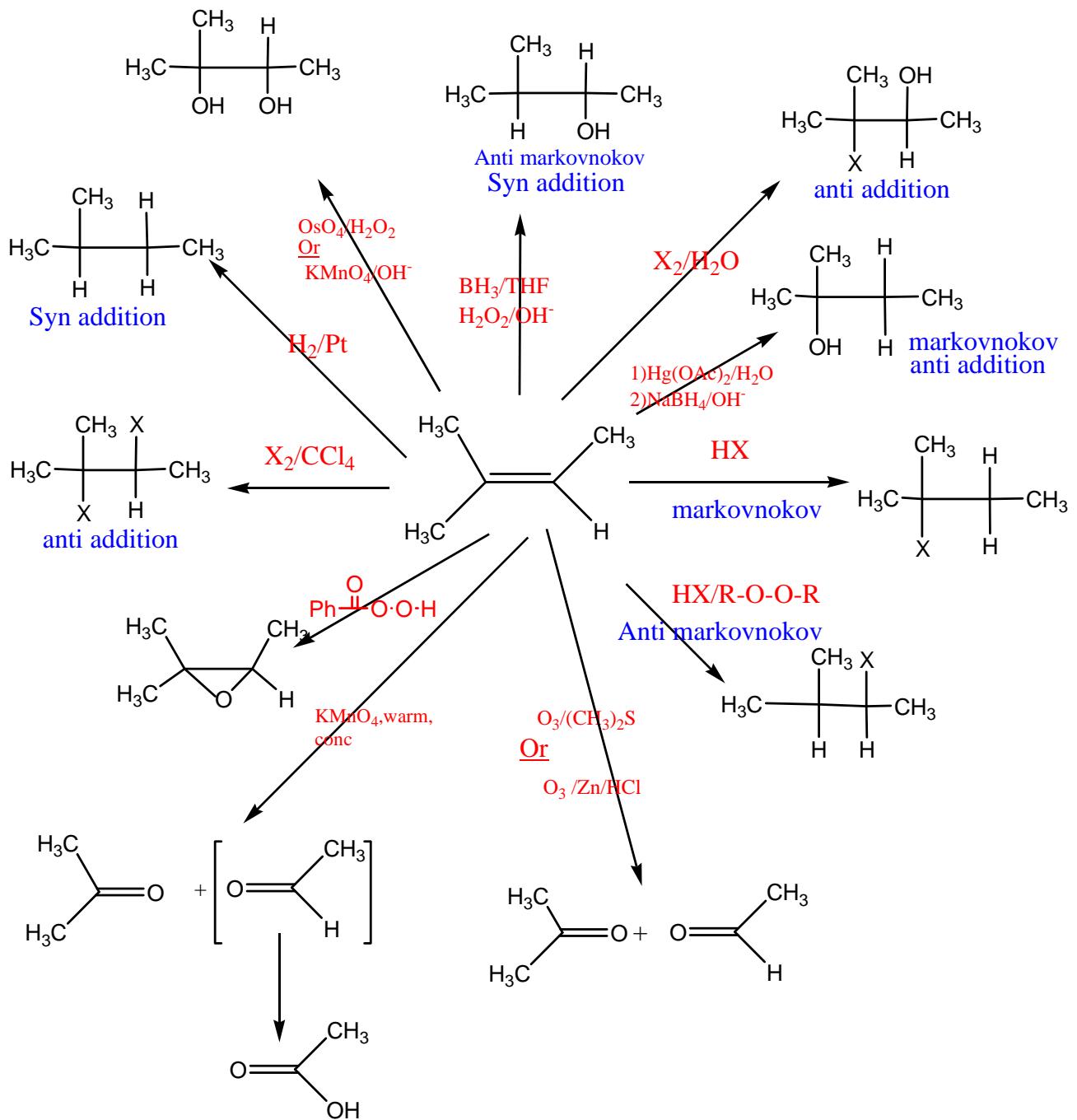
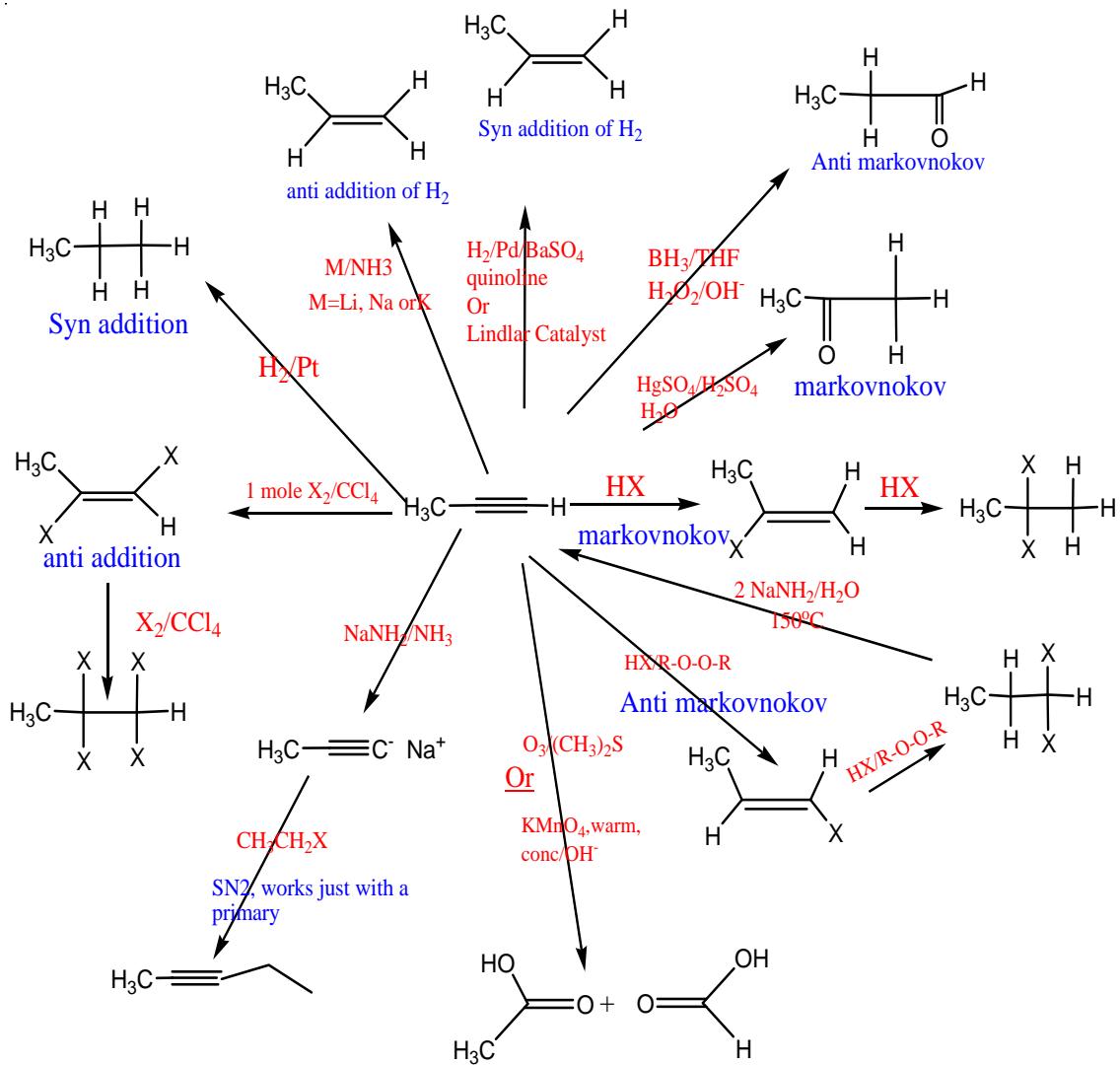


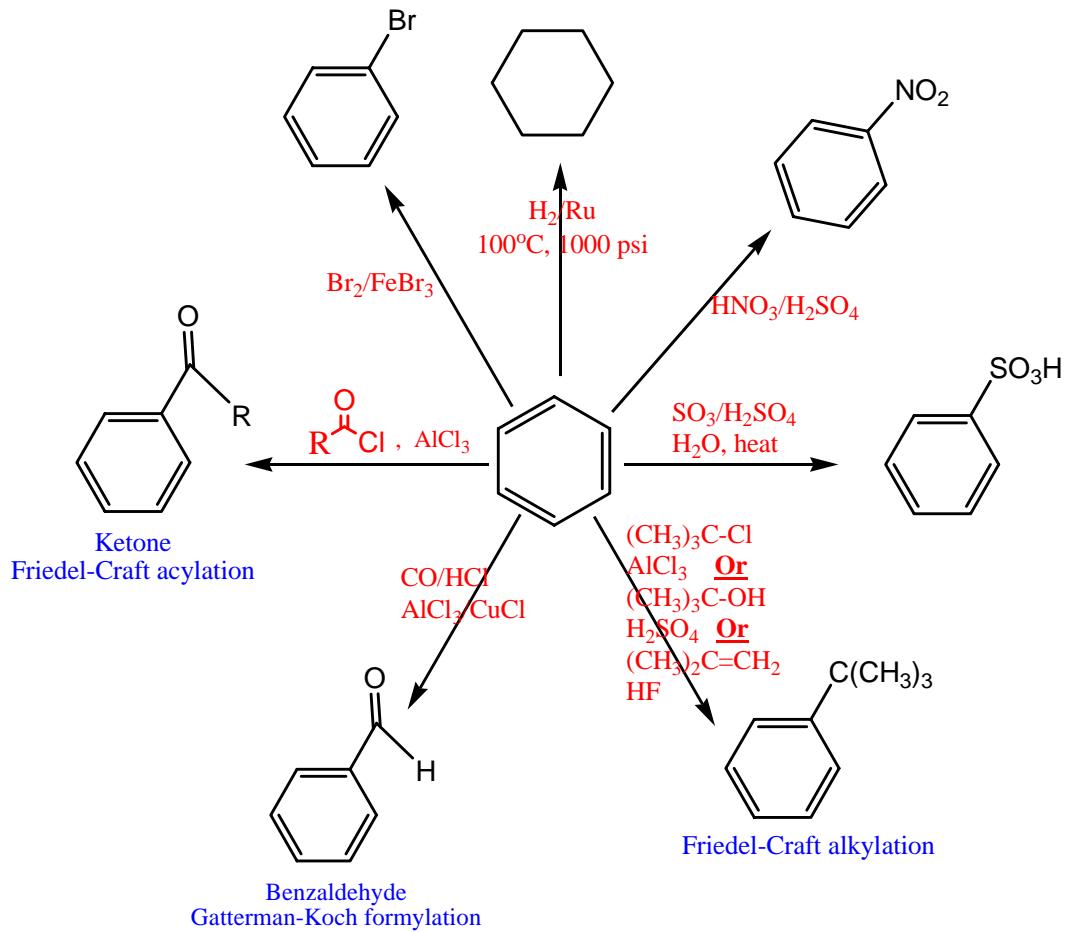
## Alkenes



## Alkynes

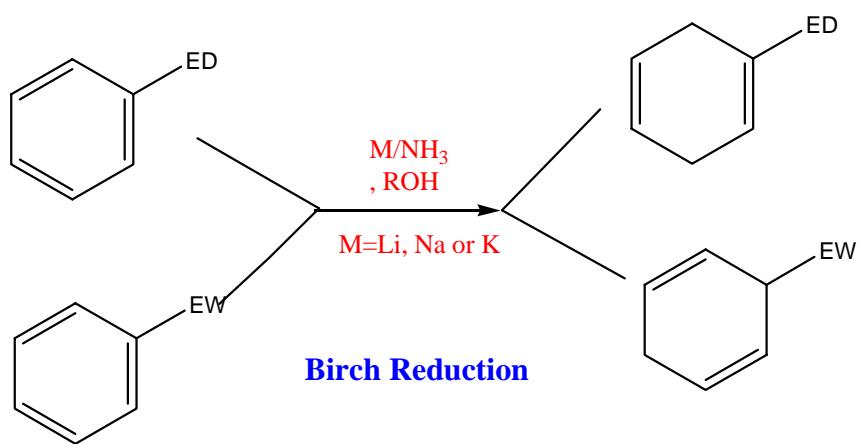


# Reaction of Aromatic compounds



## Substituent affects

- Alkyls,  $-\text{NH}_2$ ,  $-\text{NH-CO(R)}$ ,  $-\text{OR}$ ,  $-\text{OH}$ ,  $-\text{O}^-$  are electron donating groups are activators, ortho and para directors.
- $\text{Cl}$ ,  $\text{Br}$ ,  $\text{F}$ ,  $\text{I}$ , electron withdrawing group are deactivators but ortho and para directors.
- $-\text{NO}_2$ ,  $-\text{SO}_3\text{H}$ ,  $-\text{N}^+\text{R}_3$ , acyl,  $-\text{CN}$  withdrawing group are deactivators, meta directors



## Side chain reactions

